



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
-----------------	-------------	----------------------	---------------------	------------------

10/588,396

04/10/2007

Noriya Hayashi

MTU.0021US

8377

21906 7590 05/26/2009  
TROP, PRUNER & HU, P.C.  
1616 S. VOSS ROAD, SUITE 750  
HOUSTON, TX 77057-2631

EXAMINER

PAK, HANNAH J

ART UNIT

PAPER NUMBER

1796

MAIL DATE

DELIVERY MODE

05/26/2009

PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

**Attachment to BOX 11:**

The applicants' arguments filed 05/11/2009 are fully considered, but are not found persuasive. The applicants appear to argue that **(A)** for the 112 rejection, one skilled in the art would have every reason to believe that if any refractory material was affected, they all would be affected (see Page 8 of the Applicants' Remarks). With respect to the density increasing agent, since its function is relatively apparent, one does not have to list the density increasing agent (see Pages 8-9 of the Applicants' Remarks). The applicants also argue that **(B)** Anayama does not teach the claimed lower range (see Pages 9-10 of the Applicants' Remarks).

With respect to argument **(A)**, the specification does not explicitly express any and all refractory materials, density-increasing agent, or bisphenol resin having the claimed functional properties. The specification limits itself to a specific refractory material and bisphenol resin. For example, the specification at page 19, lines 21-25 state, "Density-increasing agent 3 having a higher density than that of the refractory material 2" and "refractory material 2 may have slightly higher density and a slightly lower content as compared with the resin component 1." In addition, although the function of the density-increasing agent is apparent, the density-increasing agent can include any and all density-increasing agent. For example, a density-increasing agent can be lipoprotein or wax, etc...Accordingly, these phrases are not reasonably conveyed to one of ordinary skill in the art.

With respect to argument **(B)**, Anayama et al. disclose the high density inorganic material (corresponding to the claimed density-increasing agent) having metal

Art Unit: 1796

powders with a density of at least  $2.0 \text{ g/cm}^3$  or above, which overlaps with the claimed range ( $5.0 - 22.5 \text{ g/cm}^3$ ) (Page 3, lines 15-21). Anayama et al. teach disclose employing a high density inorganic material (corresponding to the claimed density-increasing agent) with the overlapping range of density value in a neutron shielding material with optimum properties, such as higher density, improved shielding effect, greater mechanical strength and heat resistance (Page 3, lines 15-21). Since the resulting neutron shielding composition would obviously be affected by the density increasing agent, hence the density increasing agent is considered to be a result-effective variable. Therefore, the determination of the optimum or workable amount of the density-increasing agent to obtain the neutron shielding material composition with advantageous properties, including those claimed, is well within the skill of one ordinary in the art, see *MPEP* § 2144.05, *IIB*. Although Anayama et al. teach a high density material, it goes as high as the overlapping range of the density of the density-increasing agent. Moreover, the claims do not specifically recite a “low” density composition, so its not required for the prior arts to teach it so long as the density value is within the same range as those claimed.

/Hannah Pak/

Examiner, Art Unit 1796

/Vasu Jagannathan/  
Supervisory Patent Examiner, Art Unit 1796